



## JPVR Design Series Variable Volume Vane Pumps

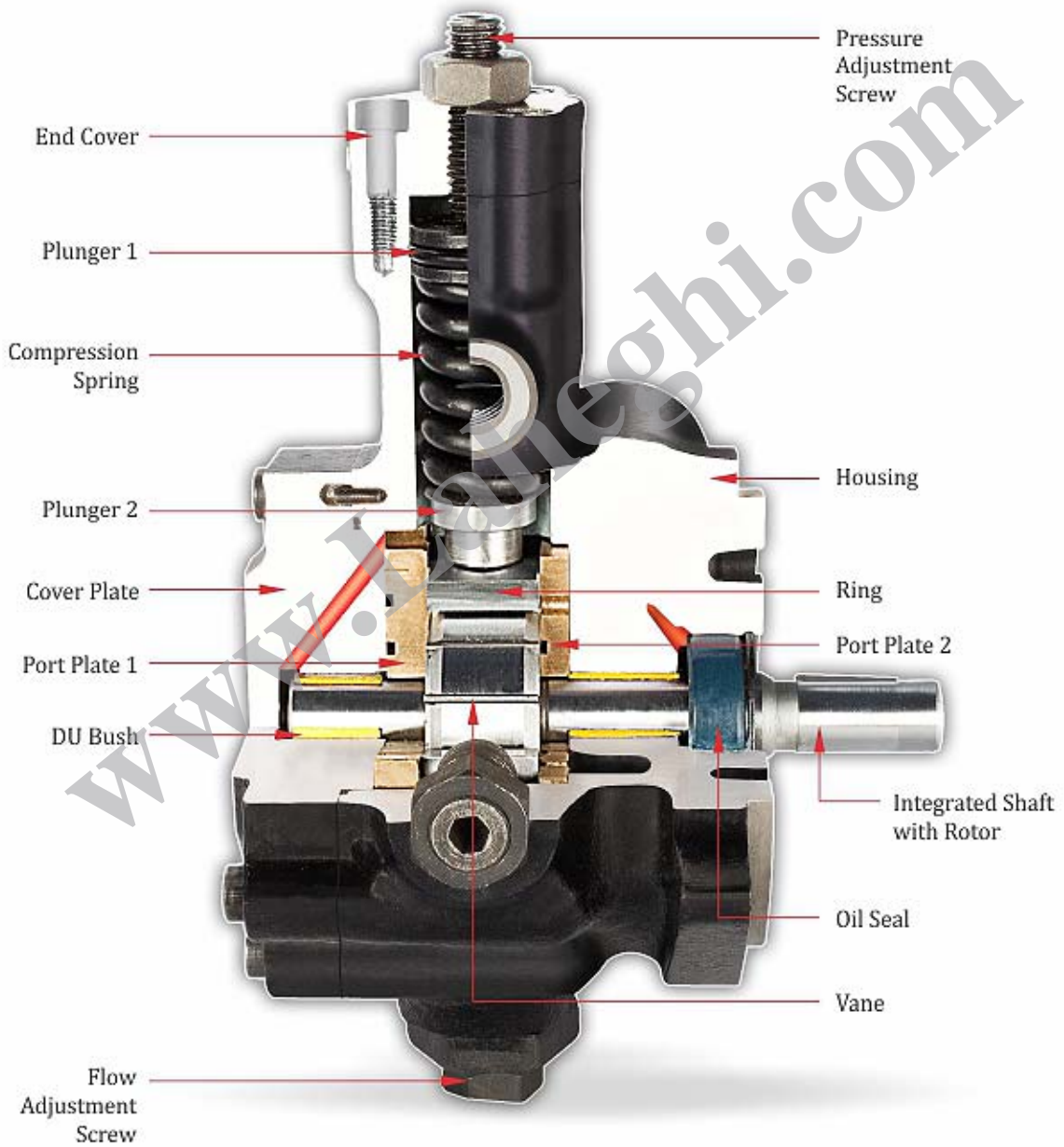


### Features

- ▶ Compact and Simple Design
- ▶ Fewer internal parts for greater reliability
- ▶ High Volumetric efficiency with minimum power loss
- ▶ Low Noise
- ▶ Self Lubricating D.U. Bush bearings for long service life
- ▶ Suction and discharge ports so configured to reduce operating noise
- ▶ Delivery with minimal pressure pulsation
- ▶ Precise control of flow characteristics
- ▶ Direct spring controlled pressure compensator with quick response to system demands
- ▶ Prompt response at both ON-OFF and OFF-ON ensures instantaneous, stable and high precision operation.

We Help You See Your Ideas Work

## Cross - Sectional Drawings



## General Information

JPVR Series-variable volume vane pumps are ideal for medium and low pressure hydraulic systems. They are economical and easy to use. These pumps made from specially selected materials with precision machining of the components ensure outstanding durability, minimum power loss and high efficiency.

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### Working Principle

The variable volume vane pump consists of Housing (01), Cover plate (02), shaft integral with rotor (03), Vanes (04), Port plates (05&07), Ring (06), Spring (12), Pressure adjustment screw and Flow adjustment screw. Cross sectional drawings show how the ring provides variable volume at constant set pressure.

As the rotor (03) rotates with in the ring (06), the vanes are pressed against the inside diameter of the ring by centrifugal force. As the rotor (03) turns clockwise, the volume between two adjacent vanes (04) (chamber) increases at the suction port. When these chambers enter the discharge port area, the volume is reduced and forces the fluid out through the discharge port. When the system requirements are less than the maximum pump output, system pressure forces the ring against the spring (12) reducing eccentricity and resulting in less flow. Maximum output occurs when the ring (06) is in extreme eccentric position. When the system volume demand falls to zero, the system pressure drives the ring to a concentric position resulting zero flow. Constant pressure from zero to full flow is maintained by spring (12).

### Installation

The thrust screw (part No:19 of cross section drawing) is precision adjusted during assembly at factory and this should not be disturbed.

The direction of rotation is clock wise when viewed from the shaft side.

Drain piping must be direct up to a point that is below tank oil level. Back pressure due to piping should not exceed  $0.3 \text{ kg/cm}^2$ .

For pressure adjustment, rotate the pressure adjusting screw in clock wise direction for increasing the pressure and in counter clock wise direction for decreasing.

For flow rate adjustment rotate the flow adjusting screw in clock wise direction for decreasing the flow rate and in counter clock wise direction for increasing.

Mount the pump so that the pump shaft is oriented horizontally. The pump shaft and the motor shaft should be aligned with in  $0.08 \text{ mm}$ . Sufficient rigidity should be ensured for the pump mounting base.

### Start Up :

To ensure proper lubrication of the pump's rubbing surfaces, fill the interior of the pump with clean oil before starting operation. Before operating the pump for the first time set discharge side of the pump in to no-load state and then repeatedly start and stop the motor to bleed all air from inside the pump and the suction piping. After conforming that the pump is discharging oil, continue the operation for at least 10 minutes to expel all the air from the circuit.

### Hydraulic Fluid :

Use good quality, petroleum based mineral oil with anti-wear additives with viscosity index of at least 90. Also the hydraulic fluid should provide kinematic viscosity during operation in the range of  $20 \text{ to } 150 \text{ mm}^2/\text{sec}$ .

### Temperature :

The operating temperature range is  $15^\circ\text{C} - 60^\circ\text{C}$ . If the oil temperature at starting is less than  $15^\circ\text{C}$ , perform warm up operation at low pressure until the oil temperature reaches  $15^\circ\text{C}$ .

### Filtration :

Suction - 100 Microns (150 mesh).  
Return - 25 Microns.

### Drive Coupling :

Jaw type with flexible web recommended. Avoid pulley, gear and other drive systems.

## Ordering Code

<b>J</b>	<b>PVR</b>	<b>1</b>	<b>17</b>	<b>55</b>
Veljan	Variable Volume Vane Pump	Series Code	Flow Rate	Maximum Adjusting Pressure

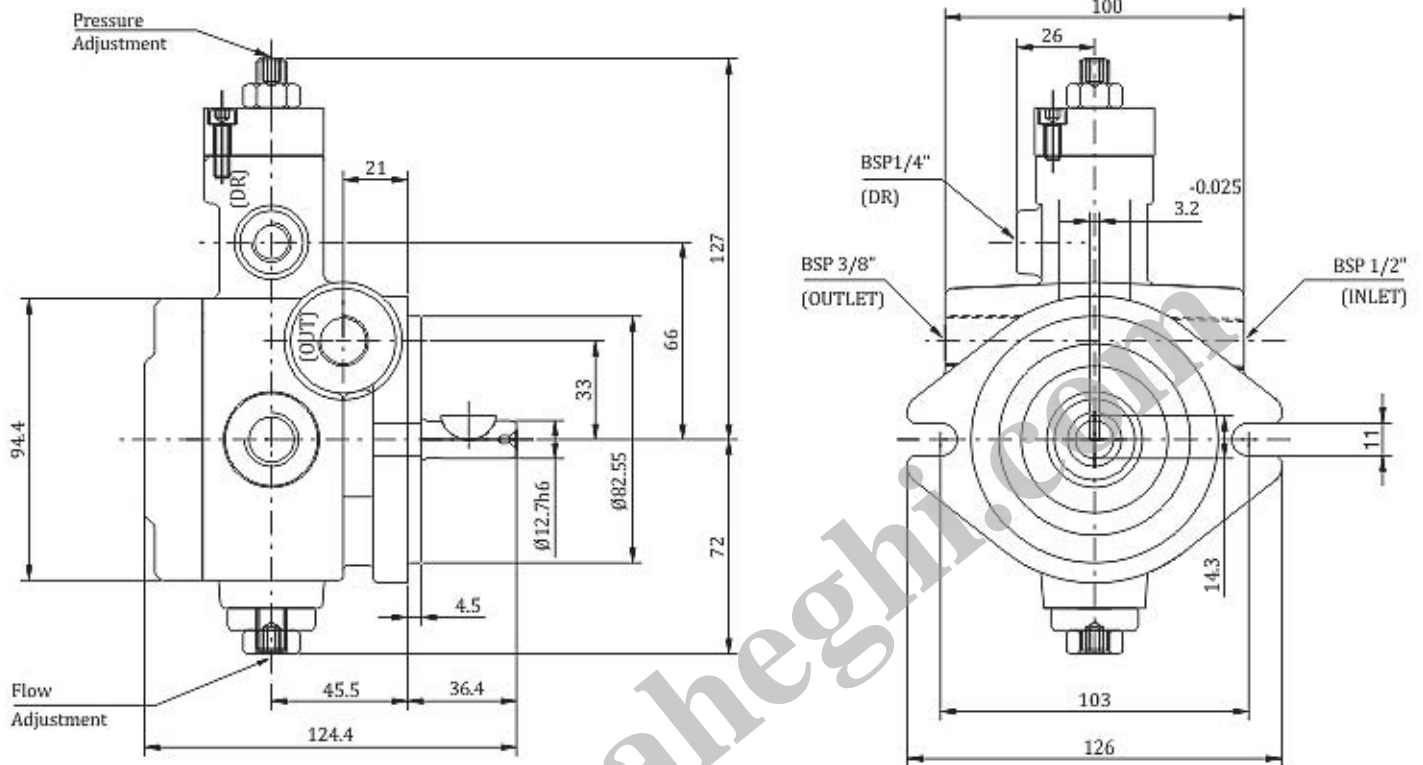
## General Specification

Model No.	Maximum Operating Pressure Kgf/cm <sup>2</sup>	Capacity Cm <sup>3</sup> / rev.	No Load Discharge rate l/min @1500 rpm	Pressure Adj. range Kgf/cm <sup>2</sup>	Shaft Speed range rpm	Weight Kg.
JPVR1 10 20	20	6.7	10	10 - 20	800 - 1500	5
JPVR1 10 35	35			10 - 35		
JPVR1 10 55	55			10 - 55		
JPVR1 10 70	70			10 - 70		
JPVR1 17 20	20	11.1	17	10 - 20	800 - 1500	5
JPVR1 17 35	35			10 - 35		
JPVR1 17 55	55			10 - 55		
JPVR1 17 70	70			10 - 70		
JPVR1 25 20	20	16.7	25	10 - 20	800 - 1500	9
JPVR1 25 35	35			10 - 35		
JPVR1 25 55	55			10 - 55		
JPVR1 25 70	70			10 - 70		
JPVR1 35 20	20	22.2	35	10 - 20	800 - 1500	9
JPVR1 35 35	35			10 - 35		
JPVR1 35 55	55			10 - 55		
JPVR1 35 70	70			10 - 70		

Installation Dimension Drawings

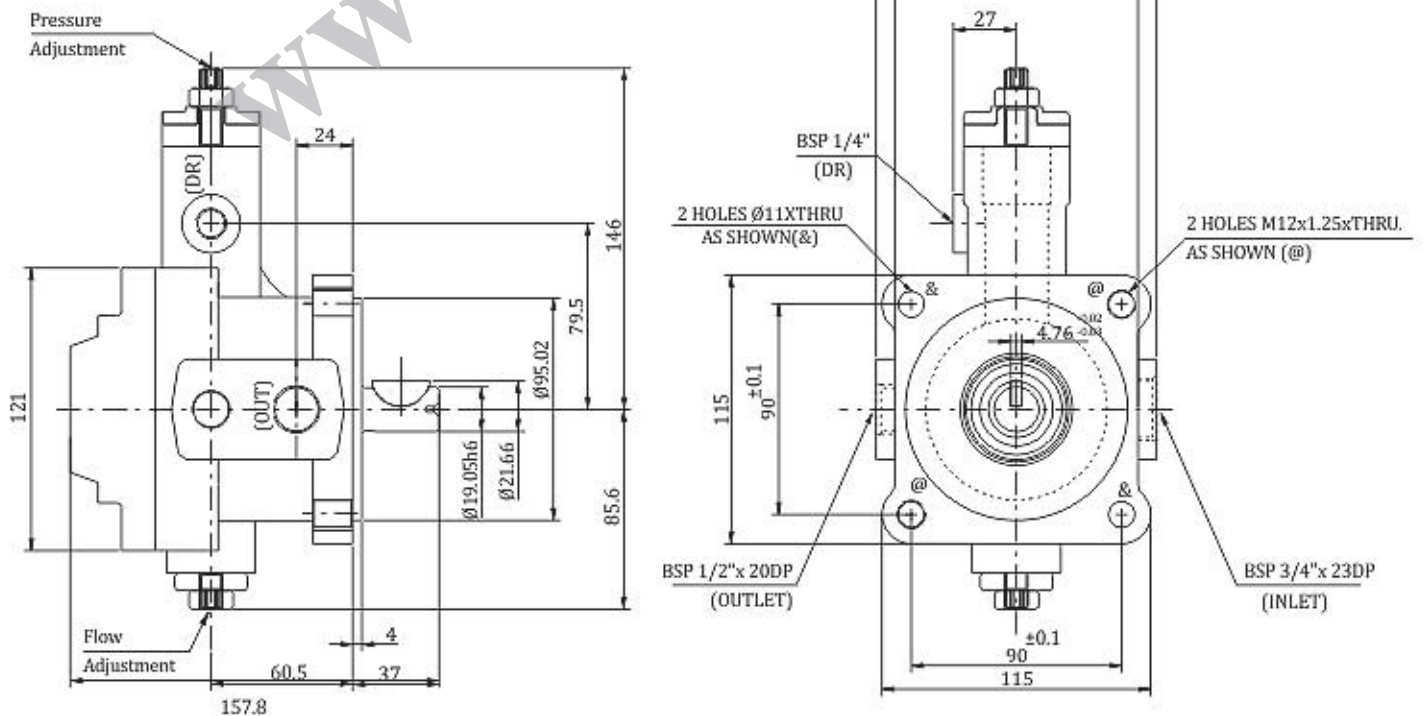
**JPVR 1 10/17**

**Flange Mounting**

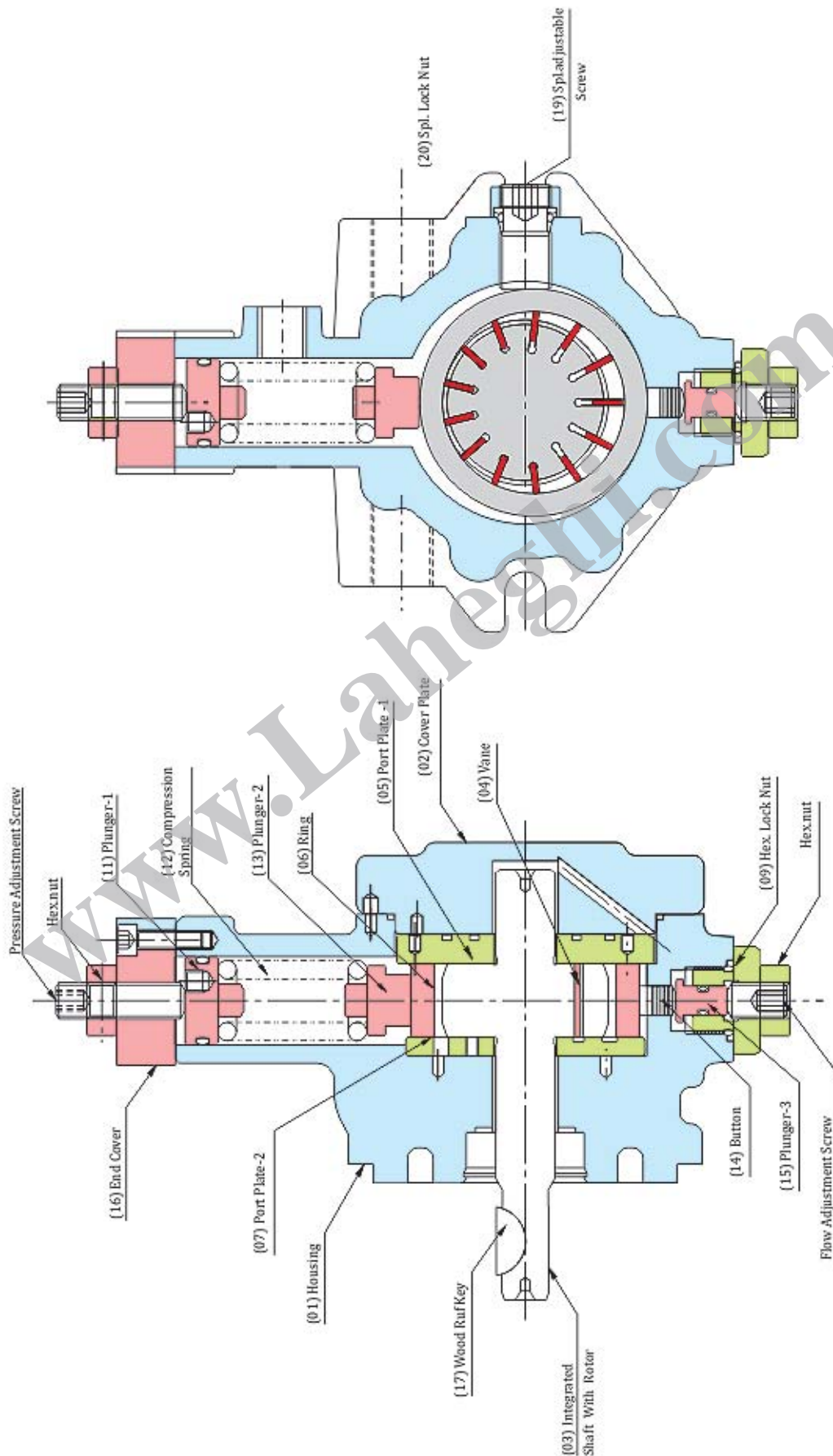


**JPVR 1 25/35**

**Flange Mounting**



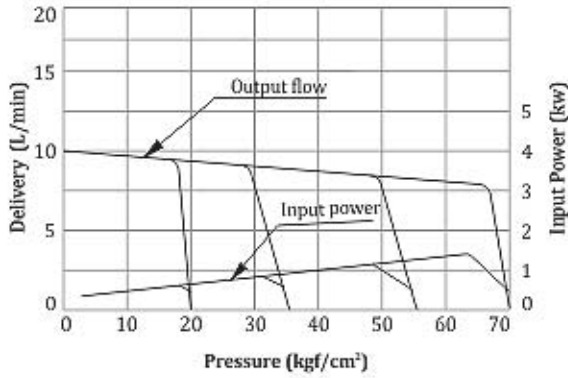
Cross - Sectional Drawings



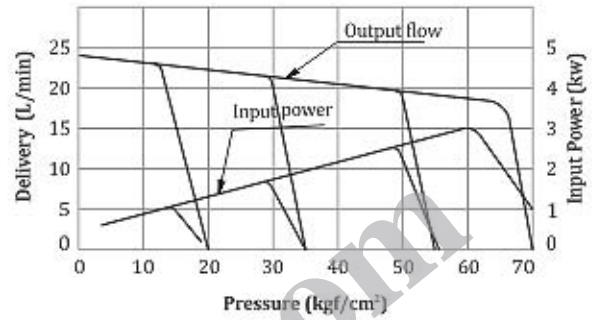
## Performance Curves

### Performance Characteristics

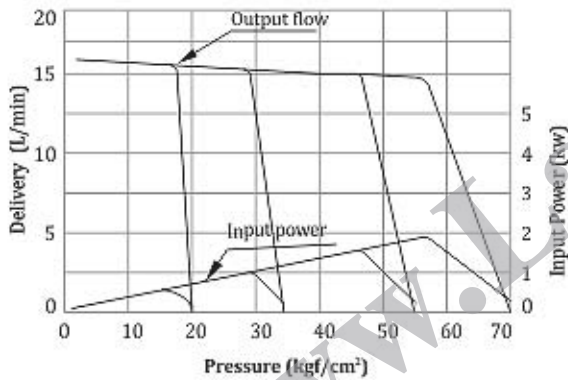
JPVR 1 10



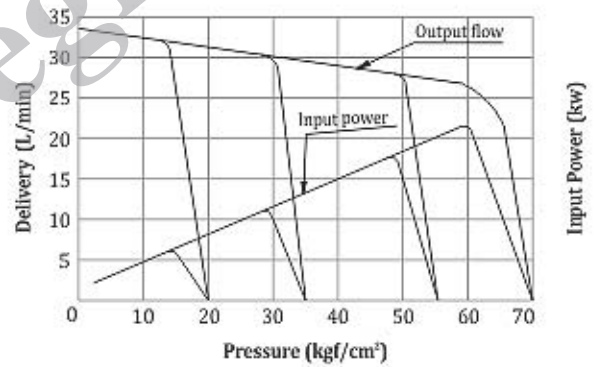
JPVR 1 25



JPVR1 17

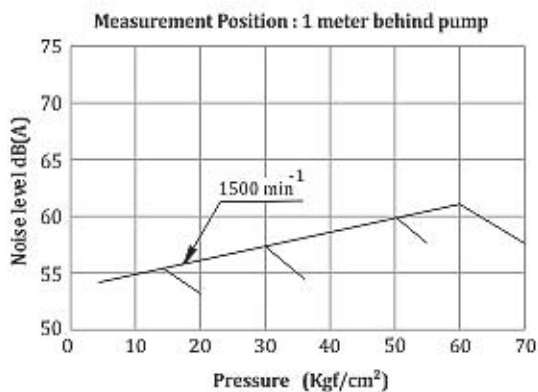


JPVR 1 35

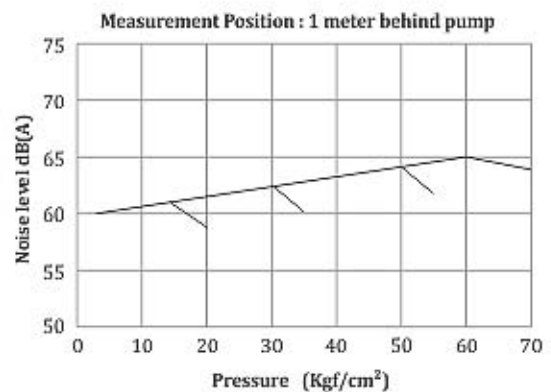


### Noise Characteristics

JPVR 1 10/17



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Veljan is a pioneer Hydraulics and Pneumatics company in India and a leader in its own right.

Veljan has a wealth of experience in developing and manufacturing a wide range of Hydraulic and Pneumatic Products and systems for over 40 years now at its three manufacturing plants near Hyderabad. These plants are equipped with state-of-the-art production and test facilities and supported by a 500 – strong skilled workforce.

#### HYDRAULICS :

##### Pumps

and

- Vane : • Fixed Displacement (Single / Double / Triple & Drive Train) 6 to 540 cc / rev up to 320 bar pressure
- Variable Displacement Vane (11 & 22 cc / rev)

- Piston : • Variable Displacement Piston ( Swash plate design for Open loop) 9 to 140 cc/rev and up to 280 bar pressure

##### Motors

- Vane : • 5 to 811 Nm Torque and Max. Pressure 4000 rpm

- Roller Cam : • 71 to 3040 Nm Torque & 400 to 750 rpm

##### Pressure Controls

- Relief / Reducing / Unloader / Sequence Valves (up to 350 Bar pressure with threaded or flanged ports) 3/8" to 1 1/2"

##### Check Valves

- Direct and Pilot operated ( 3/8" to 2" )

##### Throttle Valves

- With & without free return flow check valve (3/8" to 1 1/2")

##### Flow Control Valves

- pressure and temperature compensated (3/8" to 3/4")

##### Directional Control Valves

- Manual / Pilot and Solenoid operated (1/4" to 3/4")

##### Mobile Valves

- 1 to 12 sections, 80 LPM flow and up to 350 bar pressure.

##### Cartridge & Seat valves

- Manifolds and Complete Power packs

##### Cylinders

- 40 to 1000 mm bore, up to 8500 mm stroke and 500 bar pressure Tie Rod, Mill Duty, Mobile Duty and Custom designs

#### PNEUMATICS:

##### FRLs

##### Cylinders

- 1/4" to 2"
- Compact, ISO, Heavy Duty Tie Rod and Custom designs (10 - 500 mm Bore) and up to 17 bar pressure

##### Rotary actuators

- 90° actuation

##### 2/3/4-way DC Valves

- Spool (with & without seals), Poppet, Diaphragm & D-slide Designs. M5 and 1/8 to 1" size. Manual / Mechanical / Pilot & Solenoid Operators.

##### Auxiliary Valves

- Flow Control, Non-Return, Shuttle, Quick Exhaust Etc.

##### Presses

- C-frame and Column type

#### SYSTEMS:

- Ship Stabilizers & Steering Gear and complete Turnkey Hydraulic / Pneumatic / Hydro Mechanical systems

With its own in-house product development & enhancement, expansion of product range is an ongoing process at Veljan to meet the market demands.

If you are looking for a reliable and an economical supplier to source your hydraulic & pneumatic products, think of Veljan.



Hydraulic Pumps & Motors Plant



Hydraulic Valves Plant



Hydraulic Cylinders & Naval Systems Plant



Pneumatics Plant

Note : Product details are liable to change without notice

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